DETAILED ACTION

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

2. This application is in condition for allowance except for the presence of claims 21-32 directed to inventions non-elected without traverse.

3. Cancel claims 21-32.

4. Authorization for this examiner's amendment was given in a telephone interview with Kari Footland, Reg. No. 55,187, on 11/12/08 and 12/17/08.

The application has been amended as follows:

Delete claim 1 and replace with:

--1. (Currently Amended) A three-dimensional visual sensor for obtaining three-dimensional information on an objective workpiece based on an image of the objective workpiece captured by projecting a reference beam onto the objective workpiece, comprising:

means for detecting a two-dimensional image of a reference workpiece of a same type as the objective workpiece;

means for storing, as reference information, information about a surface of a first region including a characteristic part of the objective workpiece and a surface of a second region as a target region of three-dimensional measurement of the objective workpiece, said information about the first and second regions being obtained from the detected two-dimensional image of the reference workpiece of the same type as the objective workpiece, which is captured from a predetermined position;

means for capturing an image of the objective workpiece and determining a region corresponding to said first region in the image of the objective workpiece;

means for determining another region in the image of the objective workpiece corresponding to said second region based on information on a position of the region determined as corresponding to said first region and said reference information stored in said storage means; and

means for obtaining three-dimensional information on the objective workpiece in the another region ~~determined as corresponding to said second region of an image of the objective workpiece captured by projecting said reference beam onto the objective workpiece~~.--

Delete claim 6 and replace with:

--6. (Currently Amended) A three-dimensional visual sensor for obtaining three-dimensional information on an objective workpiece based on an image of the objective workpiece captured by projecting a reference beam onto the objective workpiece, comprising:

means for detecting a two-dimensional image of a reference workpiece of a same type as the objective workpiece;

means for storing, as reference information, information about a surface of a first region including a characteristic part of the objective workpiece and a surface of a second region as a target region of three-dimensional measurement of the objective workpiece, said information about the first and second regions being obtained from the detected two-dimensional image of the reference workpiece of the same type as the objective workpiece, which is captured from a predetermined position;

means for capturing an image of the objective workpiece and determining a region corresponding to said first region in the image of the objective workpiece;

means for determining another region in the image of the objective workpiece corresponding to said second region based on information on a position and an orientation of the region determined as corresponding to said first region and said reference information stored in said storage means; and

means for obtaining three-dimensional information on the objective workpiece in the another region ~~determined as corresponding to said second region of an image of the objective workpiece captured by projecting said reference beam onto the objective workpiece~~.--

Delete claim 11 and replace with:

--11. (Currently Amended) A three-dimensional visual sensor for obtaining three-dimensional information on an objective workpiece based on an image of the objective workpiece captured by projecting a reference beam onto the objective workpiece, comprising:

means for detecting a two-dimensional image of a reference workpiece of a same type as the objective workpiece;

means for storing, as reference information, information about a surface of a first region including a characteristic part of the objective workpiece and a surface of a second region as a target region of three-dimensional measurement of the objective workpiece, said information about the first and second regions being obtained from the detected two-dimensional image of the reference workpiece of the same type as the objective workpiece, which is captured from a predetermined position;

means for capturing an image of the objective workpiece and determining a region corresponding to said first region in the image of the objective workpiece;

means for determining another region in the image of the objective workpiece corresponding to said second region based on information on a position and a size of the region determined as corresponding to said first region and said reference information stored in said storage means; and

means for obtaining three-dimensional information on the objective workpiece in the another region ~~determined as corresponding to said second region of an image of the objective workpiece captured by projecting said reference beam onto the objective workpiece~~.--

Delete claim 16 and replace with:

--16. (Currently Amended) A three-dimensional visual sensor for obtaining three-dimensional information on an objective workpiece based on an image of the objective workpiece captured by projecting a reference beam onto the objective workpiece, comprising:

means for detecting a two-dimensional image of a reference workpiece of a same type as the objective workpiece;

means for storing, as reference information, information about a surface of a first region including a characteristic part of the objective workpiece and a surface of a second region as a target region of three-dimensional measurement of the objective workpiece, said information about the first and second regions being obtained from the detected two-dimensional image of the reference workpiece of the same type as the objective workpiece, which is captured from a predetermined position;

means for capturing an image of the objective workpiece and determining a region corresponding to said first region in the image of the objective workpiece;

means for determining another region in the image of the objective workpiece corresponding to said second region based on information on a position, an orientation and a size of the region determined as corresponding to said first region and said reference information stored in said storage means; and

means for obtaining three-dimensional information on the objective workpiece in the another region ~~determined as corresponding to said second region of an image of the objective workpiece captured by projecting said reference beam onto the objective workpiece~~.--

Response to Amendment

5. Applicant's request for reconsideration in the pre-appeal conference request of 6/17/08 of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn. Claims 1-20 are pending.

Response to Arguments

6. Applicant's arguments, see pre-appeal brief conference request, section II, first paragraph filed 6/17/08, with respect to 112, 2nd and 102(b) have been fully considered and are persuasive. The rejection of claims 1-20 has been withdrawn.

Allowable Subject Matter

7. Claims 1-20 are allowed.

8. The following is an examiner's statement of reasons for allowance:

> Claim 1 is allowable because Suyama does not teach a means for determining another region in the image of the objective workpiece corresponding to said second region based on information on a position and a size of the region determined as corresponding to said first region and said reference information stored in said storage means.
>
> Claims 6,11 and 16 are allowable for the same reasons as claim 1; thus, any dependent claims are allowable, too.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Rosario whose telephone number is (571) 272-7397. The examiner can normally be reached on 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella can be reached on (571) 272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dennis Rosario/
Examiner, Art Unit 2624

/Matthew C Bella/
Supervisory Patent Examiner, Art Unit 2624